

ECE 443/643 - Communication I

August 24, 2011

Instructor

Jonathan Kotta

- email: jpkotta@gmail.com
- cell phone: 701-306-9269 (please use discretion)
- office hours: immediately following lectures, or by appointment. You can also see me at work (please contact me in advance): 201 5th St N, Suite 1500 (15th floor of the Radisson building).

Lab instructor TBA.

Text

A. Bruce Carlson and Paul B. Crilly, *Communication Systems*, 5th ed. McGraw Hill, 2009. ISBN 0073380407.

Text is not mandatory, but is recommended.

Course Description

Communications theory and design with an emphasis on spectral techniques, modulation, and noise effects. Topics covered will include:

- review of essential mathematics: Fourier analysis, LTI systems, linear algebra
- information theory
- baseband signals; up and down conversion in frequency
- Hilbert transforms and analytic signals
- continuous wave modulation: AM (SSB, DSB), FM, PM
- digital modulation: ASK, PSK, FSK, QAM

Grading

Homework	20%
Lab	20%
Tests (3)	40%
Final	20%

I will try to assign homework often (about once a week). After homework is due, I will post solutions, allow self-grading, and then collect and spot-check to verify the self-grading.

Assume that calculators and notes will not be allowed during exams, though there may be exceptions. Usually there will be a review session prior to a test; this will not be during normal lecture or lab hours.

Graduate students (ECE 643) will have additional problems on the homework and tests. In addition, a short report on an academic paper relating to the course material will be required.

Course grades will be determined by plotting all scores on a histogram and drawing divisions between clusters for different letter grades, possibly with individual exceptions. This is a 4 credit course.

Academic Honesty

The academic community is operated on the basis of honesty, integrity, and fair play. NDSU Policy 335: Code of Academic Responsibility and Conduct applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the Office of Registration and Records. Informational resources about academic honesty for students and instructional staff members can be found at www.ndsu.edu/academichonesty.

Disabilities

Any students with disabilities or other special needs, who need special accommodations in this course are invited to share these concerns or requests with the instructor and contact the Disability Services Office as soon as possible.

Veterans

Veterans and student soldiers with special circumstances or who are activated are encouraged to notify the instructor in advance.